

REMARKS

Claims 6-13 are pending. The specification and claims 9 and 10 are amended.

The Examiner makes several objections to the drawings. The specification has been amended to provide a description referring to Fig 5G with a similar amendment referring to Fig. 7G. It is believed that the amendments overcome the drawing objection.

Claim 9 was objected to under 37 CFR 1.75(c), as being of improper dependent form. Claim 9 has been amended to depend from claim 7.

Claim 10 was objected to due to a typographical error. Claim 10 has been amended to correct this error as well as to amend the dependency thereof to claim 6.

Claims 6, 7 and 10-12 were rejected under 35 USC §112, first paragraph. Favorable reconsideration of this rejection is earnestly solicited.

Contrary to the assertion of the Examiner, the subject matter of these claims is clearly described in the original specification in the part related to FIGS. 5A - 5C or FIGS. 7A - 7C. Thus, the rejection of the examiner under 35 U.S.C. 112, first paragraph is respectfully traversed.

As set forth in page 5, lines 26 - 32, the object of the present invention is to provide a semiconductor device and a fabrication process thereof, wherein the problem of trapping of hot carriers in a gate oxide film is successfully eliminated while simultaneously realizing a stable and reproducible device characteristic. In order to achieve the object, the present invention proposes to introduce N atoms into the gate oxide film while using a gate electrode pattern as a mask. According to the present invention, the N atoms are introduced into the gate oxide film selectively in correspondence to the edge part of the drain region where the acceleration of the carriers is maximum, while the gate oxide film immediately underneath the gate electrode pattern is maintained substantially free from the N atoms. Thereby the problem of trapping of the hot

carriers in the gate oxide film is successfully avoided in the part where the creation of the hot carriers is maximum. As the gate oxide film is substantially free from the N atoms in the part immediately underneath the gate electrode pattern, the designed operational characteristic is obtained for the semiconductor.

Claims 6 - 13 were rejected under 35 U.S.C. 35, 103 (a) as being unpatentable over Kanba in view of Yamashita et al. This rejection is respectfully traversed.

Kanba merely teaches a background art of MOSFET. Thus, Kanba is entirely silent about the problem of hot carrier injection into the gate oxide film or injection of N atoms into the gate oxide film as set forth in claim 6.

Yamashita, on the other hand, specifically addresses the problem of hot electron trapping in the side wall insulation film of highly miniaturized MOS transistors and discloses a process of introducing N into the side wall insulation film such that the maximum peak of the N concentration is located inside the side wall insulation film. See the profile of FIGS. 8 - 10 or other similar profiles of Yamashita.

Contrary to Yamashita, the present invention introduces N atoms into the gate oxide film, not the side wall oxide film, in such a manner that the N atoms are not introduced to the part of the gate oxide film located underneath the gate electrode, except for the lateral edge parts.

Thus, the process of the present invention as set forth in claim 6, which clearly states that the N atoms are introduced into the gate oxide film, is clearly distinct over Yamashita. Even if combined with Kanba, the subject matter of claim 6, and hence the claims depending therefrom, are not derived.

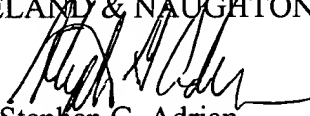
For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

In the event that this paper is not timely filed, applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees which may be due with respect to this paper, may be charged to Deposit Account No. 01-2340.

Respectfully submitted,

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Attachment: Petition for Extension of Time

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